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Fig. 1 (Prior Art)

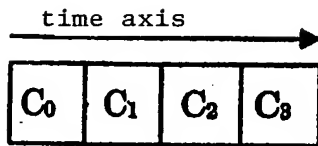
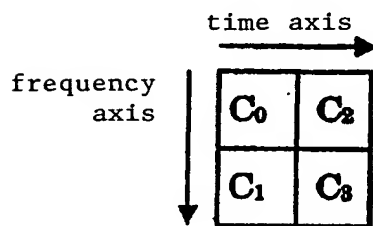


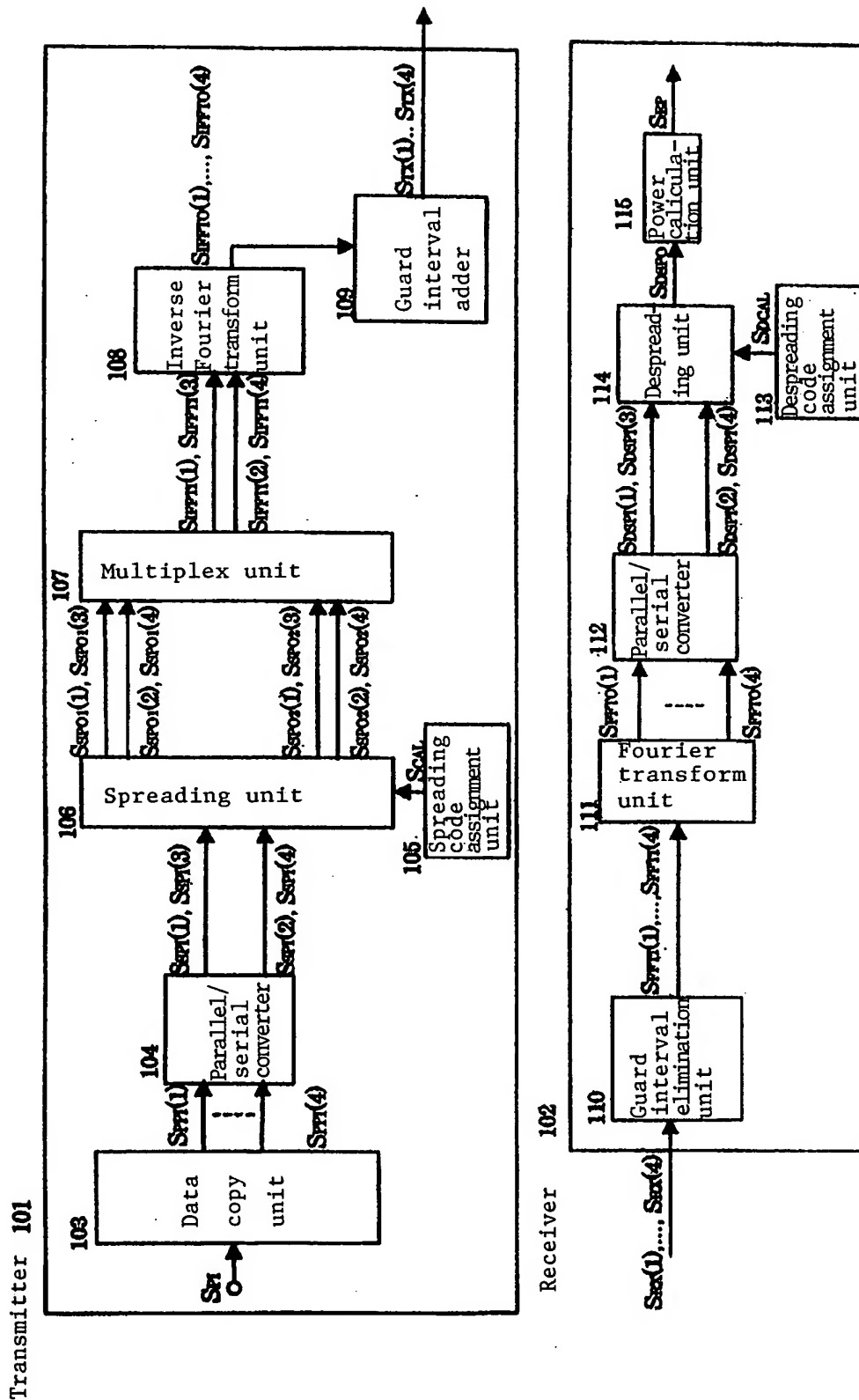
Fig. 2 (Prior Art)



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Fig. 3



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The diagram illustrates a transmitter and receiver system for a spread spectrum communication system.

**Transmitter 201:**

- Data copy unit (103):** Receives input data  $S_{in}$  and outputs  $S_{in}(1), \dots, S_{in}(4)$  to the parallel/serial converter.
- Parallel/serial converter (104):** Converts the input data into parallel streams  $S_{in}(1), S_{in}(2), S_{in}(3), S_{in}(4)$ .
- Spreading unit (106):** Receives the parallel streams and outputs  $S_{spp}(1), S_{spp}(2), S_{spp}(3), S_{spp}(4)$  to the multiplex unit.
- Multiplex unit (107):** Receives the spread streams and outputs  $S_{spp}(1), S_{spp}(2), S_{spp}(3), S_{spp}(4)$  to the inverse Fourier transform unit.
- Inverse Fourier transform unit (108):** Receives the multiplexed streams and outputs  $S_{spp}(1), \dots, S_{spp}(4)$  to the guard interval adder.
- Guard interval adder (109):** Adds a guard interval to the spread streams and outputs  $S_{spp}(1), \dots, S_{spp}(4)$ .

**Receiver 202:**

- Guard interval elimination unit (110):** Receives the input streams  $S_{spp}(1), \dots, S_{spp}(4)$  and outputs  $S_{spp}(1), \dots, S_{spp}(4)$  to the Fourier transform unit.
- Fourier transform unit (111):** Receives the streams and outputs  $S_{spp}(1), S_{spp}(2), S_{spp}(3), S_{spp}(4)$  to the parallel/serial converter.
- Parallel/serial converter (112):** Converts the streams into parallel streams  $S_{spp}(1), S_{spp}(2), S_{spp}(3), S_{spp}(4)$ .
- Despreading unit (114):** Receives the parallel streams and outputs  $S_{spp}(1), S_{spp}(2), S_{spp}(3), S_{spp}(4)$  to the power calculation unit.
- Power calculation unit (115):** Receives the streams and outputs  $S_{spp}(1), \dots, S_{spp}(4)$  to the channel fluctuation information receiver.
- Channel fluctuation information receiver (203):** Receives the streams and outputs  $S_{spp}(1), \dots, S_{spp}(4)$  to the spreading code assignment unit.
- Spreading code assignment unit (204):** Receives the streams and outputs  $S_{spp}(1), \dots, S_{spp}(4)$  to the spreading unit.
- Spreading unit (205):** Receives the streams and outputs  $S_{spp}(1), \dots, S_{spp}(4)$  to the channel fluctuation information transmitter.
- Channel fluctuation information transmitter (206):** Receives the streams and outputs  $S_{spp}(1), \dots, S_{spp}(4)$  to the despreading code assignment unit.
- Despreading code assignment unit (207):** Receives the streams and outputs  $S_{spp}(1), \dots, S_{spp}(4)$  to the despreading unit.

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